

REMARKSAmendments

Claim 1 has been amended to recite that the first and second laminates are secured in a stack by means of an adhesive. Basis for this is found in original claim 11.

The Rejection Under 35 USC § 103(a)

Applicants respectfully traverse the rejection of claims 1-6, 8-10, 12-23, and 27 under 35 USC § 103(a) as unpatentable over Barrett (U.S. Patent No. 6,172,591 B1) in view of Hogge (U.S. Patent No. 6,020,808), insofar as the rejection is applicable to the amended claims.

The present claims recite a process for manufacturing a composite polymeric circuit protection device. The process includes providing a polymeric assembly and then subdividing the assembly into individual devices, each of which contains at least one electrical connection. The polymeric assembly comprises first and second laminates, each of which comprises a laminar polymer element having two conductive surfaces. Also provided for the assembly is a pattern of conductive material on at least one of the conductive surfaces on one laminate. The first and second laminates are secured in a stack by means of an adhesive, with one conductive surface of each of the first and second laminates comprising an external conductive surface of the stack, and a plurality of electrical connections are made between a conductive surface of the first laminate and a conductive surface of the second laminate. The assembly can be used to provide a variety of devices of different shapes and sizes, produced in an efficient manner.

Barrett discloses a device in which three or more PTC devices are connected in parallel by means of alternating inserting a conductive polymer layer (having no conductive surfaces) between two metal foil-conductive polymer-metal foil elements, or attaching a conductive polymer layer having two conductive surfaces (in which the conductive layer is over some or all of each surface) to a layer having no conductive surfaces or one conductive surface. As a result, there is a single conductive metal layer (preferably nodularized on both surfaces) between sequential conductive polymer layers, with external metal layers. Barrett does not disclose a process in which the first and second laminates each have two conductive surfaces and each provide one external conductive surface, nor does he disclose the use of an adhesive layer to attach the elements.

The deficiencies of Barrett are not resolved by the addition of Hogge. Hogge discloses a conductive polymer PTC device having upper, lower, and center electrodes with conductive polymer layers positioned between the electrodes. The upper and lower electrodes are divided into main and isolated portions, with the isolated portions being electrically connected to each other and to the center electrode. The main portions of the upper and lower electrodes are connected to upper and lower output terminals, respectively, and these upper and lower output terminals are electrically connected to each other but are electrically isolated from the center electrode. The device can be made by a process in which a laminate is formed by layering an upper electrode, a first PTC conductive polymer layer, a center electrode, a second PTC conductive polymer layer, and a lower electrode. An electrically isolated portion of each of the upper and lower electrode layers is separated from a main portion, and an input terminal connecting the isolated portions of the upper and lower electrodes to each other and to the center electrode layer is formed. Upper and lower output terminals are formed on the main portion of the upper and lower electrode layers, respectively, and the upper and lower output terminals are then connected to one another. As in Barrett, an adhesive is not used to attach the first and second laminates. In fact, in Hogge, there are no laminates; the center electrode is directly attached to the first and second conductive polymer layers during the process.

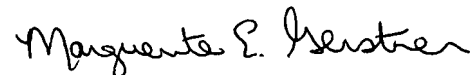
One of ordinary skill in the art who read Barrett with Hogge would not be taught of the usefulness of using first and second laminates, each having two conductive surfaces, and then of attaching these laminates in a stack by means of adhesive. In fact, Barrett teaches that it is important to use internal metal layers that are nodularized on both surfaces to provide good adhesion between the conductive polymer layers. There is no teaching that such dual nodularization should or could be replaced by an adhesive layer.

Because independent claim 1 is patentable over Barrett and Hogge, Applicants contend that the dependent claims similarly are patentable.

Conclusion

Allowance of this application at an early date is requested. If, however, there are any outstanding issues which can be usefully discussed by telephone, the Examiner is asked to call the undersigned.

Respectfully submitted,

A handwritten signature in cursive script, reading "Marguerite E. Gerstner".

Marguerite E. Gerstner
Registration No. 32,695
Telephone (650) 361-2483